

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
31 December 2003 (31.12.2003)

PCT

(10) International Publication Number  
**WO 2004/001042 A3**

(51) International Patent Classification<sup>7</sup>: **C12Q 1/68**,  
C12N 15/10 // C12P 21/02, C07H 21/00

Per-Ola [SE/SE]; Ringvägen 7, S-235 93 Vellinge (SE).  
PEDERSEN, Henrik [DK/DK]; Frodesvej 24, DK-2880  
Bagsværd (DK).

(21) International Application Number:  
PCT/DK2003/000417

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,  
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,  
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,  
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,  
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,  
MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE,  
SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,  
VC, VN, YU, ZA, ZM, ZW.

(22) International Filing Date: 20 June 2003 (20.06.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
PCT/DK02/00419 20 June 2002 (20.06.2002) DK  
10/175,539 20 June 2002 (20.06.2002) US  
PA 2002 01953 19 December 2002 (19.12.2002) DK  
60/434,664 20 December 2002 (20.12.2002) US

(84) Designated States (*regional*): ARIPO patent (GH, GM,  
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),  
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,  
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,  
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,  
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (*for all designated States except US*): NUEVO-  
LUTION A/S [DK/DK]; Rønnegade 8, 5, DK-2100  
København Ø (DK).

Published:

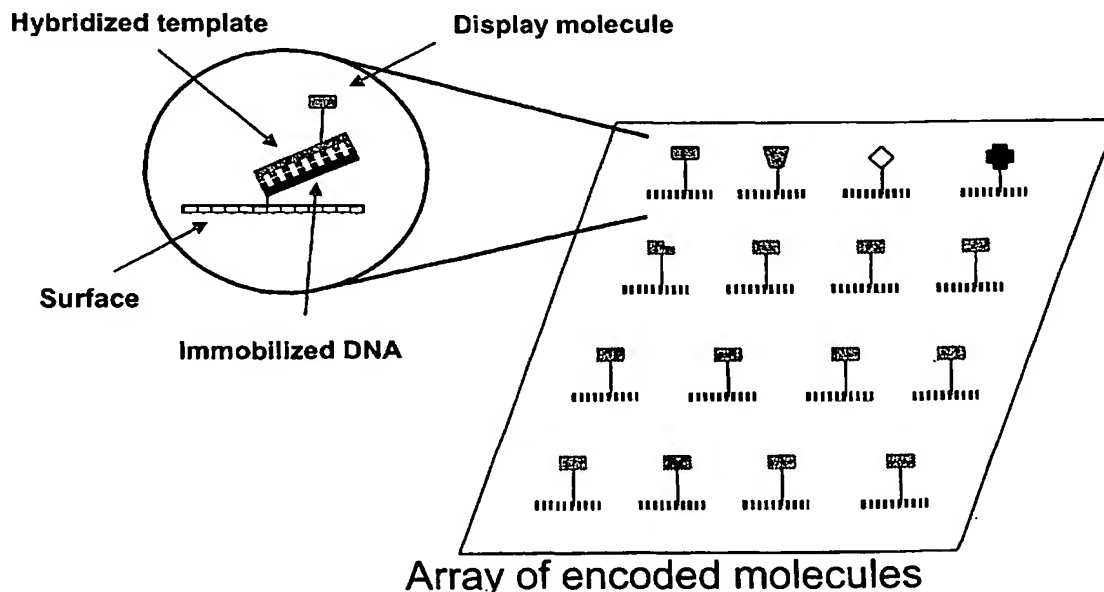
- with international search report
- before the expiration of the time limit for amending the  
claims and to be republished in the event of receipt of  
amendments

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): FRESKGÅRD,

[Continued on next page]

(54) Title: MICROARRAYS DISPLAYING ENCODED MOLECULES



(57) Abstract: Disclosed is a microarray comprising a plurality of single stranded nucleic acid probes immobilized in discrete areas of a solid support, said probes being hybridised to a library of complexes, wherein each complex comprises an encoded molecule and a template which codes for said molecule, said template comprising a number of codons which codes for chemical entities which upon reaction form a reaction product which at least partly form part of the encoded molecule.



**(88) Date of publication of the international search report:**  
18 March 2004

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

# INTERNATIONAL SEARCH REPORT

In **al** Application No  
**PCT/DK 03/00417**

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 C12Q1/68 C12N15/10 //C12P21/02,C07H21/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 C12Q C12N C07H C12P

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, MEDLINE, BIOSIS, EMBASE

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 00 23458 A (UNIV LELAND STANFORD JUNIOR) 27 April 2000 (2000-04-27) page 1 -page 3, line 30	1-10
Y	US 5 723 598-A (BRENNER SYDNEY ET AL) 3 March 1998 (1998-03-03) column 1 -column 3, line 1	1-10
Y	SUMMERER D-ET AL: "DNA-TEMPLATED SYNTHESIS: *MORE VERSATILE THAN EXPECTED" ANGEWANDTE CHEMIE. INTERNATIONAL EDITION, VERLAG CHEMIE. WEINHEIM, DE, vol. 41, no. 1, 4 January 2002 (2002-01-04), pages 89-90, XP001170352 ISSN: 0570-0833 the whole document	1-10
	--- -/-	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

3 February 2004

Date of mailing of the international search report

10/02/2004

Name and mailing address of the ISA

European Patent Office, P.B. 6818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Osborne, H

# INTERNATIONAL SEARCH REPORT

Int'l Application No  
PCT/DK 03/00417

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>BRUICK R K ET AL: "TEMPLATE-DIRECTED LIGATION OF PEPTIDES TO OLIGONUCLEOTIDES" CHEMISTRY AND BIOLOGY, CURRENT BIOLOGY, LONDON, GB, vol. 3, no. 1, January 1996 (1996-01), pages 49-56, XP000856876 ISSN: 1074-5521 the whole document</p>	1-10
Y	<p>WALDER J A ET AL: "COMPLEMENTARY CARRIER PEPTIDE SYNTHESIS: GENERAL STRATEGY AND IMPLICATIONS FOR PREBIOTIC ORIGIN OF PEPTIDE SYNTHESIS" PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF USA, NATIONAL ACADEMY OF SCIENCE. WASHINGTON, US, vol. 76, no. 1, January 1979 (1979-01), pages 51-55, XP000857351 ISSN: 0027-8424 the whole document</p>	1-10
Y	<p>EP 0 778 280 A (ISIS INNOVATION) 11 June 1997 (1997-06-11) figures 4,5; example 17</p>	1-10
Y	<p>WO 96 41011 A (SPECTRAGEN INC) 19 December 1996 (1996-12-19) figure 3</p>	1-10
Y	<p>LOCKHART D J ET AL: "EXPRESSION MONITORING BY HYBRIDIZATION TO HIGH-DENSITY OLIGONUCLEOTIDE ARRAYS" BIO/TECHNOLOGY, NATURE PUBLISHING CO. NEW YORK, US, vol. 14, no. 13, 1 December 1996 (1996-12-01), pages 1675-1680, XP002022521 ISSN: 0733-222X the whole document</p>	1-10
Y	<p>WO 97 27317 A (CHEE MARK ;LAI CHAOQIANG (US); LEE DANNY (US); AFFYMETRIX INC (US)) 31 July 1997 (1997-07-31) figures 12-15</p>	1-10
Y	<p>WO 99 42605 A (SCHWABACHER ALAN W) 26 August 1999 (1999-08-26) page 2, line 11 - line 16</p>	1-10
A	<p>WO 94 08051 A (READER JOHN C ;STILL W CLARK (US); UNIV COLUMBIA (US); COLD SPRING) 14 April 1994 (1994-04-14)</p>	

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/DK 03/00417

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0023458	A	27-04-2000	AU 1318400 A	08-05-2000
			CA 2346989 A1	27-04-2000
			EP 1123305 A1	16-08-2001
			WO 0023458 A1	27-04-2000
US 5723598	A	03-03-1998	US 5573905 A	12-11-1996
			US 6060596 A	09-05-2000
			AT 193561 T	15-06-2000
			AU 685050 B2	15-01-1998
			AU 3944993 A	08-11-1993
			CA 2132103 A1	14-10-1993
			DE 69328781 D1	06-07-2000
			DE 69328781 T2	26-04-2001
			DK 643778 T3	07-08-2000
			EP 0643778 A1	22-03-1995
			ES 2147197 T3	01-09-2000
			JP 7505530 T	22-06-1995
			WO 9320242 A1	14-10-1993
EP 0778280	A	11-06-1997	EP 0778280 A2	11-06-1997
			AT 159767 T	15-11-1997
			AT 230409 T	15-01-2003
			AU 695349 B2	13-08-1998
			AU 7269194 A	28-02-1995
			CA 2168010 A1	09-02-1995
			CN 1131440 A , B	18-09-1996
			DE 69406544 D1	04-12-1997
			DE 69406544 T2	26-02-1998
			DE 69431967 D1	06-02-2003
			DK 711362 T3	22-12-1997
			EP 0711362 A1	15-05-1996
			ES 2108479 T3	16-12-1997
			FI 960403 A	29-01-1996
			WO 9504160 A1	09-02-1995
			HU 73802 A2	30-09-1996
			JP 3289911 B2	10-06-2002
			JP 9501830 T	25-02-1997
			NO 960370 A	28-03-1996
			RU 2158310 C2	27-10-2000
			US 2002115091 A1	22-08-2002
			US 5770367 A	23-06-1998
			US 2001031472 A1	18-10-2001
			US 6218111 B1	17-04-2001
WO 9641011	A	19-12-1996	US 5635400 A	03-06-1997
			AU 718357 B2	13-04-2000
			AU 6102096 A	30-12-1996
			CA 2222581 A1	19-12-1996
			CA 2332731 A1	19-12-1996
			CN 1193357 A	16-09-1998
			CZ 9703926 A3	17-06-1998
			EP 0832287 A1	01-04-1998
			HU 9900910 A2	28-07-1999
			JP 11507528 T	06-07-1999
			NO 975744 A	05-02-1998
			PL 324000 A1	27-04-1998
			WO 9641011 A1	19-12-1996
			AU 712929 B2	18-11-1999

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/DK 03/00417

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9641011	A		AU 4277896 A	06-05-1996
			AU 7717596 A	30-04-1997
			CA 2202167 A1	25-04-1996
			CZ 9700866 A3	17-09-1997
			EP 0793718 A1	10-09-1997
			EP 0931165 A1	28-07-1999
			FI 971473 A	04-06-1997
			JP 10507357 T	21-07-1998
			NO 971644 A	02-06-1997
			US 6280935 B1	28-08-2001
			WO 9713877 A1	17-04-1997
			US 6235475 B1	22-05-2001
WO 9727317	A	31-07-1997	AU 2253397 A	20-08-1997
			EP 0880598 A1	02-12-1998
			JP 2002515738 T	28-05-2002
			WO 9727317 A1	31-07-1997
			US 2003180757 A1	25-09-2003
			US 2003064364 A1	03-04-2003
			US 6344316 B1	05-02-2002
			US 2002165372 A1	07-11-2002
WO 9942605	A	26-08-1999	US 2002006604 A1	17-01-2002
			AU 2871299 A	06-09-1999
			CA 2321111 A1	26-08-1999
			EP 1056882 A1	06-12-2000
			JP 2002540380 T	26-11-2002
			WO 9942605 A1	26-08-1999
WO 9408051	A	14-04-1994	AT 244769 T	15-07-2003
			AU 716621 B2	02-03-2000
			AU 4525897 A	12-02-1998
			AU 686579 B2	12-02-1998
			AU 5536994 A	26-04-1994
			CA 2143848 A1	14-04-1994
			DE 69333087 D1	14-08-2003
			DK 665897 T3	20-10-2003
			EP 0665897 A1	09-08-1995
			HU 72495 A2	28-05-1996
			IL 107166 A	31-10-2000
			JP 8506175 T	02-07-1996
			NO 951230 A	30-03-1995
			WO 9408051 A1	14-04-1994
			US 5565324 A	15-10-1996
			US 5968736 A	19-10-1999
			US 5721099 A	24-02-1998
			US 5789172 A	04-08-1998
			US 6503759 B1	07-01-2003